U.S. Navy **September 2008**

Proposed Plan

Area of Concern 60 (East Mat Drainage Ditch) & Area of Concern 61 (TACAN Outfall and Associated Areas) Naval Air Station South Weymouth Weymouth, Massachusetts

The Proposed Plan

This Proposed Plan has been prepared in accordance with federal law to present the Navy's proposed **No Further Action** decision for Areas of Concern (AOC) 60 and 61 at the former Naval Air Station (NAS) South Weymouth in Weymouth, Massachusetts. The Navy has prepared this Proposed Plan after careful study of AOCs 60 and 61 in accordance with federal law and in coordination with federal and state environmental regulatory agencies. This document provides the public with information regarding this plan and describes how they can participate in the remedy selection process.

Let us know what you think!

Mark Your Calendar!

PUBLIC COMMENT PERIOD

October 1, 2008 to October 31, 2008

The Navy will accept written comments on the Proposed Plan for AOCs 60 and 61 during this period. Send written comments postmarked no later than October 31, 2008 to:

Mr. Brian Helland
Remedial Project Manager
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, PA 19112

or email your comments to: brian.helland@navy.mil

PUBLIC INFORMATION SESSION AND PUBLIC HEARING – October 16, 2008

The Navy will hold a public information session at NAS South Weymouth from 6:00 p.m. to 7:00 p.m. that will include posters describing the Proposed Plan. A public meeting will follow from 7:00 p.m. to 8:00 p.m., during which the Navy will provide a presentation and host a question-and-answer session. The Navy will hold a formal public hearing from 8:00 p.m. until all comments are heard. At this formal hearing, an official transcript of comments will be entered into record.

For more information, visit one of the Information Repositories listed at the end of this Proposed Plan.

Introduction

This Proposed Plan provides information to the public on the proposed No Further Action (NFA) decisions for AOC 60 (East Mat Drainage Ditch) and AOC 61 (Tactical Air Navigation (TACAN) Outfall and associated drainage areas) at the former NAS South Weymouth (the Base). This document is intended to present the rationale for proposing No Further Action for these sites, and to encourage and facilitate public participation in the decision-making process. The Navy has prepared this Proposed Plan for AOCs 60 and 61 based upon a thorough evaluation conducted in accordance with the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This law, better known as Superfund, establishes procedures for investigating and cleaning up hazardous waste sites. Key terms, such as CERCLA, are defined in the Glossary of Terms at the end of the document.

The Navy (as the lead agency) works closely with the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) in their environmental investigations at NAS South Weymouth and in efforts to return the property to the local communities.

The Navy has prepared this Proposed Plan in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the National Contingency Plan to fulfill its public participation responsibilities.

The purpose of this Proposed Plan is to:

- Provide information about the environmental investigations and removal actions completed at AOCs 60 and 61;
- Identify and explain the Navy's Proposed Plan;

- Solicit public review and comment on this Proposed Plan; and
- Provide information on how the public can be involved in the decision-making process.

This Proposed Plan summarizes key information from previous reports concerning AOCs 60 and 61. More detailed information can be found in the reports completed for each AOC. The documents are available for public review at the Information Repositories for the Base (locations listed at the end of this document).

The Navy encourages the public to review the investigation reports to gain a better understanding of environmental activities completed for the sites and to provide the Navy with any comments or concerns.

The CERCLA Process and AOCs 60 and 61

AOC 60 and AOC 61 are 2 of 18 CERCLA Areas of Concern (AOCs) located at NAS South Weymouth (see Figure 1). These areas were first investigated as part of the Environmental Baseline Survey (EBS) program and were designated Review Item Areas or RIAs. Work plans for the EBS investigations, which described the number of samples, locations and media, and analytical parameters at each RIA, were developed in collaboration with the EPA and MassDEP. RIAs which exceed either risk benchmarks or background values for more than one hazardous substance become CERCLA AOCs.

The Navy followed the CERCLA process in investigating and conducting response actions at AOC 60 and AOC 61. Each step in the CERCLA process was completed by the Navy with input, review, and approval from the EPA and input, review, and comment from MassDEP. As part of the CERCLA process, each site was sampled for potential contaminants of concern (EBS Phase II) and the results were screened against background values for the Base, human health risk-based benchmarks, and ecological risk-based benchmarks. The screening results were included in decision documents.

The human-health based screening benchmarks used at each site are the most conservative (lowest) value available for residential exposures in either EPA Region III Risk Based Concentrations (RBCs) or EPA Region IX Preliminary Remediation Goals (PRGs) and Massachusetts Contingency Plan (MCP) Method 1 S-1/GW-1 Standards. The benchmark for each analyte was established as the lower value under residential land use scenarios (i.e., residential soil and tap water RBCs, PRGs, or S-1/GW-1 values for soil and groundwater). EPA RBC and PRG values for non-carcinogenic compounds were reduced by a factor of 10, as a further conservative measure to account for potential additive effects.

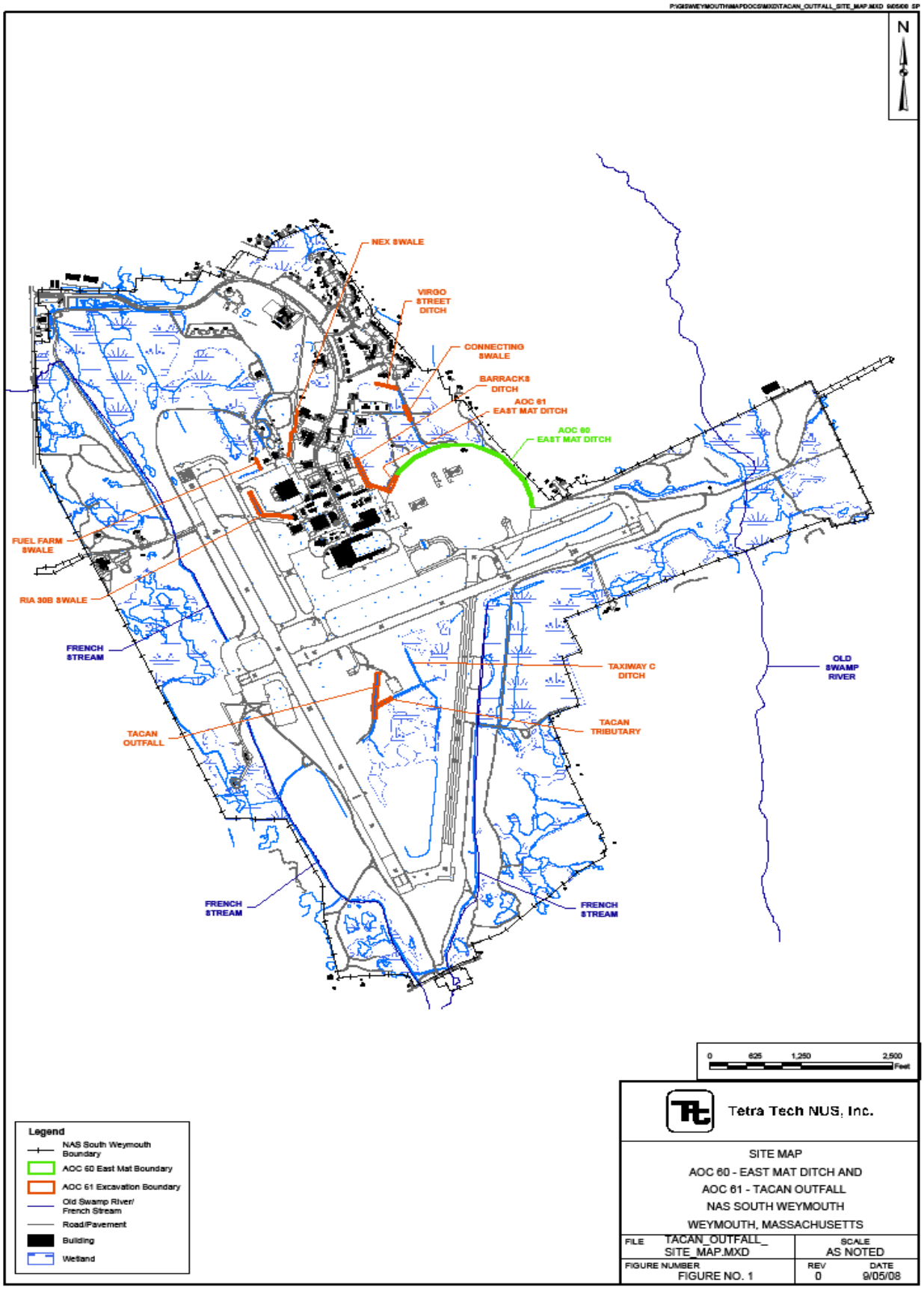
Media specific ecological risk-based benchmarks have been established for all potential receptors and affected media consistent with those used for evaluation of the Installation Restoration (IR) Program sites. The ecological benchmarks were the same as those used in the Phase I Remedial Investigation (RI), South Weymouth Naval Air Station.

Inorganics (metals) and polycyclic aromatic hydrocarbons (PAHs) exceeding ecological and/or human-health risk benchmarks were compared to established background levels. The background levels were developed from analytes detected in background samples at the Base, using field data from the Phase I and Phase II RI and the Phase II EBS investigations. Background levels can be found in the Final Summary Report of Background Data Summary Statistics (February 2002), at the information repositories listed at the end of this document.

After a site is identified as an AOC, the Navy may then perform a streamlined risk assessment and/or a removal action to address site concerns. The streamlined risk assessment is a preliminary process that estimates the likelihood that adverse human or ecological effects (e.g., mortality, reproductive failure) will occur as a result of a release of a hazardous substance. The Navy performed a streamlined risk assessment for ecological receptors at AOC 60, removed sediment from both AOCs, and disposed of the material off-site. Also, the storm sewer system for the Base was cleaned in conjunction with sediment removal for AOC 61. Post-excavation confirmatory samples were taken to verify whether concentrations were below cleanup criteria. Post-removal sediment target cleanup levels were based on the screening benchmarks and background levels. Once the sediment concentrations are below the target cleanup levels, no unacceptable risk remains to human health or the environment.

The results of post-removal confirmation samples, as documented in the Closeout Removal Action Memoranda (CRAMs), along with other site data representing current conditions were summarized in Technical Memoranda for AOCs 60 and 61. Based on the information presented in the Technical Memoranda, the Navy has concluded that No Further Action is required for AOCs 60 and 61. The EPA has concurred with this finding. The recommendations for these two AOCs do not affect the strategy or progress of environmental investigations at other sites at the Base.

Information about each of the AOCs is provided below. Documents associated with the AOCs and referenced in this proposed plan are available at the Information Repositories for the Base.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AOC 61 EAST MAT DITCH
AOC 60 EAST MAT DITCH
FUEL FARM SWALE
RIA 30B SWALE
FRENCH STREAM
TAXIWAY C DITCH
OLD SWAMP RIVER
TACAN OUTFALL
TACAN TRIBUTARY
FRENCH STREAM
FRENCH STREAM
0 625 1,250 2,500 Feet
Legend
NAS South Weymouth Boundary
AOC 60 East Mat Boundary
AOC 61 Excavation Boundary
Old Swamp River/ French Stream
Road/Pavement
Building
Wetland
Tetra Tech NUS, Inc.
SITE MAP
AOC 60 - EAST MAT DITCH AND
AOC 61 - TACAN OUTFALL
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AOC 60 – Site Background and Characteristics

Where is AOC 60?

AOC 60 consists of the eastern portion of the East Mat drainage ditch (EMD). The western portion of the EMD was investigated as part of AOC 61, which is described elsewhere in this document. AOC 60 is located in the east-central portion of the Base, adjacent to the East Mat (Figure 1).

What was AOC 60 used for?

The ditches provided drainage from the East Mat and the surrounding areas. The primary use of the East Mat was as a mooring area for lighter-than-air aircraft, aircraft fuel discharge area, aircraft de-arming area, and as a taxiway and parking area for aircraft. According to personnel interviewed for the Phase I EBS, during the 1950s through the 1970s, aircraft fuel tanks were drained directly into the drainage ditches surrounding the East Mat. Other unspecified materials were likely to have also been disposed of in the drainage ditches.

What does AOC 60 look like today?

The East Mat is paved with asphalt; however, large sections are cracked and severely weathered (Figure 2). The rest of the surrounding area along the ditch consists of wooded areas and wetlands. The ditch varies in width from 5 feet to 20 feet, and in depth from 3 inches to 16 inches. Parts of the ditch are culverted underground.

Figure 2 – 1999 photo of East Mat facing east. The drainage ditch is behind the silt fence in the left portion of the photo.

What were the investigation results?

Investigations at AOC 60 were conducted in multiple phases (see sidebar on page 5). The first was the EBS Phase II field investigation, which was followed by a removal action in 2004. An additional investigation in 2006 was followed by a second removal action in 2007 (Figure 3). The following provides an overview of the actions performed and summarizes the analytical results from the environmental investigations.

1998 AOC 60 EBS Phase II investigation

Sediment and surface water samples were collected in October and November 1998 from the EMD. The sampling results, which were compared to ecological benchmarks, are provided below.

- ***Volatile Organic Compounds (VOCs)—***VOCs were not detected in surface water samples above benchmark screening levels. One VOC in sediment, acetone, exceeded benchmark screening levels and was retained as a contaminant of potential concern (COPC).

- ***Semivolatile Organic Compounds (SVOCs)—***SVOCs were not detected in surface water samples. Several SVOCs were detected in all of the sediment samples at concentrations below screening benchmarks or background, if applicable. One SVOC, a polycyclic aromatic hydrocarbon (PAH), 1,2-benzphenanthracene, exceeded benchmark screening levels (it did not have an applicable background level) and was retained as a COPC.

- ***Pesticides*** —One pesticide was detected in one surface water sample below benchmark screening levels. Six pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, endosulfan sulfate, and gamma-chlordane) were detected in sediment at concentrations exceeding applicable benchmark values and were retained as COPCs.

- ***PCBs*** —PCBs were not detected in surface water. One PCB, Aroclor 1260, was detected in sediment at concentrations exceeding applicable benchmark values and was retained as COPCs.

- ***Inorganics*** —Several inorganics (metals) were detected at AOC 60. Two metals (aluminum and lead) exceeded background and benchmark screening levels in surface water. Three metals (barium, cadmium, and mercury) exceeded background and benchmark screening levels in sediment. The five metals were retained as COPCs.

AOC 60 Environmental Investigations and Removal Actions

1983—The Navy began evaluating environmental impacts at NAS South Weymouth, including site walkovers, reviews of Base records, and interviews.

1994—EPA listed NAS South Weymouth on the National Priorities List.

1995—The Navy performed a Phase I EBS to identify additional potentially contaminated sites requiring further investigation. As a result, AOC 60 was one of the sites identified for further study.

1998—The Navy conducted a Phase II EBS that involved the collection of sediment and surface water samples in the East Mat drainage ditch.

2000—The Phase II EBS results were screened against EBS criteria which indicated potential risks to human health and the environment. The site was therefore classified as a CERCLA AOC. In addition, a supplemental investigation was conducted to re-sample locations and analyze for additional parameters in support of an ERA.

2003—Based on comments on the May 2003 draft ERA, the Navy returned to the field in July and collected additional sediment samples.

2004— The Navy completed the final ERA using the results from the Phase II EBS and supplemental investigations to calculate risks posed to ecological receptors.

Based on the ecological risks at one location identified in the ERA, a removal action was conducted at that spot and two others under CERCLA. Post excavation samples indicated that the contaminated sediment was successfully removed and no unacceptable risks to human health or the environment remained.

2006—Sediment samples were collected in portions of the ditch not previously sampled and analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides, and metals. One hot spot containing SVOCs was identified.

2007—The Navy performed two additional removal actions at the hot spot area. Confirmatory samples were collected and analyzed for SVOCs. The sample results indicated that the hot spots and associated risk were effectively removed.

2000 AOC 60 EBS Phase II supplemental investigation

As a result of a data review performed at the start of the ecological risk assessment effort for the Base, it was determined that the data collected in 1998 was not sufficient for risk assessment purposes. Sediment and surface water were re-sampled at the same locations as in 1998. Sediment samples were analyzed for the same parameters as before, with the addition of acid volatile sulfides/ simultaneously extractable metals and grain size. Surface water samples were analyzed for total metals, dissolved metals, and hardness only.

2003 AOC 60 supplemental sampling

In May 2003, the Navy produced a draft streamlined ecological risk assessment (ERA) using the samples collected at AOC 60 in 1998 and 2000. Based on regulator comments on the draft document, the Navy returned to the site in July 2003 and collected three sediment samples to evaluate the earlier PAH results, which had been analyzed by a different method. The samples were analyzed for SVOCs, PAHs, and PCBs. The data were not used in the ERA due to discrepancies in the PAH results and the inclusion of the sampling locations in the planned removal action which thereby removed any COPCs.

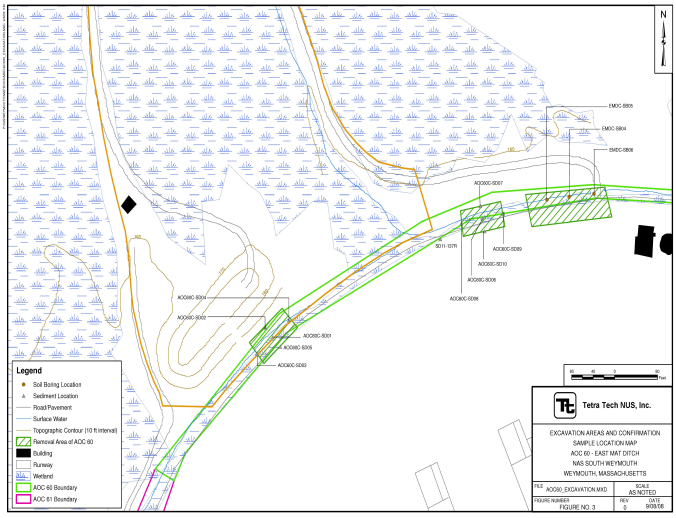

Figure 3 – East Mat Ditch Excavation Areas and Confirmation Sample Location

What were the risks, and how were they addressed?

A streamlined ERA was conducted for AOC 60 and included the following three steps:

Step 1—Formulate the Problem

The Navy collected and evaluated information about the site conditions (e.g., type of habitat, and types of plant and animal species at the site), COPCs, and potential exposure pathways. Surface water COPCs evaluated in the ERA

included five SVOCs, total PAHs, and one inorganic. Sediment COPCs evaluated in the ERA included 1 VOC, 20 SVOCs, total PAHs, 9 pesticides, 1 PCB, and 10 inorganics. The Navy evaluated wetland plants exposed to sediment; aquatic receptors (invertebrates, plants, and amphibians) exposed to surface water, sediment, and groundwater (as it discharges to surface water); and wetland vertebrate wildlife exposed to surface water and sediment.

Step 2—Conduct a Risk Analysis

The Navy evaluated the possible harmful effects to ecological receptors from the COPCs identified during the EBS investigations in 1998 and 2000. Potential chemical exposure also depends on the plant and animal tissue concentrations, which were estimated based on bioaccumulation factors cited in technical references.

Step 3—Characterize the Risks

The results from the risk analysis were used to determine the probability of adverse effects to the ecological receptors at the sites. A potential risk to benthic receptors was shown to exist based on the average concentration of total PAHs in sediment at AOC 60. The ERA concluded that the greatest contributor to ecological risk at AOC 60 was the PAH concentrations in sediment at one location. If that location were to be removed, the site would pose no unacceptable risk to ecological receptors.

2003 AOC 60 human health risk evaluation

In November 2003, the Navy issued a draft evaluation of potential human health risks from the EMD. Sediment sample data from proposed removal locations (based on the ERA) were not included in the human health evaluation. The human health evaluation concluded that potential risks associated with surface water were within EPA's acceptable risk range and met MassDEP benchmarks. For sediment, risks were within EPA's acceptable risk range and below MassDEP's target risk value. In December 2003, following a revision to the human health risk evaluation, EPA agreed that there were no unacceptable human health risks associated with AOC 60.

2004 AOC 60 removal action

In January 2004, the Navy excavated sediment from the location identified in the ERA which posed a risk to ecological receptors due to the presence of elevated PAH concentrations. An additional location was excavated in the EMD due to regulatory concerns.

Five confirmatory samples were collected from each excavation: one sample at each sidewall, and one from the base of the excavation. A total of 63 tons of sediment were removed. The confirmation samples were analyzed for PAHs. The PAHs did not exceed background concentrations and were eliminated as COPCs. Six metals (aluminum, antimony, beryllium, chromium, magnesium, and silver) exceeded site background levels.

The Navy conducted a risk evaluation of the metals and concluded that the metals did not pose unacceptable risk to human health. The metals did not pose unacceptable risk to ecological receptors, except for antimony, for which the literature did not have enough information to determine risk for benthic organisms or avian wildlife. Antimony did not pose an unacceptable risk to the other ecological receptors.

2006 AOC 60 supplemental sampling

In December 2006, the Navy collected additional sediment samples along 2,500 feet of the EMD not previously sampled. The samples were analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides and metals; the data were screened against applicable MassDEP criteria. One sediment location showed exceedances of the following five PAHs: benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(a,h)anthracene. Beryllium exceedances were noted at four locations. Based on regulator comments, the Navy agreed to perform another removal action to remove elevated PAHs at the identified hotspot.

2007 AOC 60 removal action

In November 2007, the Navy excavated approximately 150 linear feet of the ditch; 75 feet on either side of the identified sediment PAH exceedances. Three confirmatory samples were collected for SVOC analysis. Based on the screening of the confirmatory sample results, additional excavation was recommended with confirmatory sample analysis for SVOCs to lower reporting limits. In December 2007, the Navy excavated an additional 30 linear feet of the ditch. Approximately 31 tons of sediment were removed. Post excavation sampling confirmed that the PAH exceedances were removed.

2008 AOC 60 Technical Memorandum

The Navy prepared a Technical Memorandum which compiled the various data sets to represent current site conditions and screen these data against applicable basewide background levels and ecological and human health benchmarks.

AOC 60 Conclusions/NFA Rationale

An ERA performed on the surface water and sediment samples concluded that one portion of the EMD was the primary contributor to risk, based on total PAH concentrations, and that if the sediment were to be removed, the remaining sediments would not pose unacceptable risk to the environment. The ERA also noted that AOC 60 is a narrow intermittent ditch with limited ecological habitat.

Based on the ERA results, the Navy conducted a removal action to remediate the sediment identified as a risk to ecological receptors, as documented in the Closeout Report Action Memorandum. Approximately 63 tons of sediment were removed. Post-removal confirmatory samples were compared to established background levels.

An ecological and a human health risk evaluation were conducted for the metals in the post-removal confirmatory samples which exceeded background levels. (PAHs were detected in these samples, but did not exceed background in sediment). The evaluation concluded that the residual sediment concentrations did not pose a risk to human health. Sediment concentrations did not pose unacceptable risk to ecological receptors, except for antimony, for which the literature did not have enough information to determine risk for benthic organisms or avian wildlife. Antimony did not pose unacceptable risk to the other ecological receptors.

The results of the additional characterization of the ditch in 2006 indicated the presence of another hot spot with PAH exceedances. Additional removal actions (excavation of 31 tons of sediment) were completed to address these PAH exceedances. Comparison of post-removal confirmatory samples to established background levels confirmed the removal of the PAH hot spot.
The post-removal confirmatory samples and other data from AOC 60 investigations were compiled to create a current conditions dataset. This dataset was screened against background levels, where appropriate, and basewide benchmarks, as summarized in the 2008 Technical Memorandum. The Navy has concluded that the removal actions have successfully mitigated the identified risks and has determined that the site does not pose an unacceptable risk to human health or the environment. The EPA has concurred with this conclusion.

AOC 61 – Site Background and Characteristics

Where is AOC 61?

AOC 61 consists of the TACAN outfall, which is located in the triangular area between former Runways 17-35 and 8-26 and Taxiway C (Figure 1). The TACAN outfall encompasses approximately 1.8 acres and drains storm water (collected from a number of swales, ditches, and catch basins), via underground piping, from large areas of NAS South Weymouth. The TACAN outfall pipe discharges at the headwall into the TACAN outfall ditch, which is approximately 700 feet long from headwall to a downstream weir.

The AOC originally consisted only of the TACAN outfall itself; however, the source of contamination in the outfall was the sediment from the entire storm sewer system. The Base storm water drainage system consists of a series of drains, manholes, ditches and swales, connected by underground piping that ranges from 4 to 60 inches in diameter. In order to ensure that the outfall was not re-contaminated, the entire storm sewer system discharging into the outfall (catch basins, manholes, and subsurface piping) was cleaned.

What was AOC 61 used for?

The TACAN outfall is the destination for most of the storm water run-off at the Base. Catch basins and manholes collect and transfer storm water run-off into subsurface drainage piping as well as surface ditches and swales that eventually discharge into the TACAN outfall. In addition, prior to the 1980s, the building floor drain systems also connected to the storm sewer system and the TACAN outfall.

The TACAN outfall collects water and sediment from various environmental sites at the Base which may have been contaminated. In addition, several releases of various fuels directly into the TACAN outfall have been documented.

What does AOC 61 look like today?

The majority of the area surrounding the TACAN Outfall is comprised of relatively flat grassy areas. However, several concrete and asphalt paved areas are located within a 200-ft radius of the TACAN Outfall. Buildings 69 and 74 are approximately 175 ft directly north of the headwall, which marks the beginning of the TACAN Outfall. Although the TACAN Outfall is manmade, the immediate vicinity of the outfall area is a wetland.

What were the investigation results?

Environmental investigations of petroleum releases conducted under the MCP are detailed in the 1997 Comprehensive Site Investigation, which closed out the TACAN outfall under the MCP. Environmental investigations at AOC 61 conducted under CERCLA are discussed in this proposed plan.

Several environmental investigations and removal actions were conducted under CERCLA. See sidebar on the next page for a timeline of events. Samples collected from the various areas were analyzed for Target Analyte List (TAL) metals and Target Compound List (TCL) organics (i.e., VOCs, SVOCs, herbicides, pesticides, and PCBs). The following provides an overview of the exploratory sampling performed, analytical results, removal actions, confirmatory samples and outcome for each portion of AOC 61.

Navy Exchange (NEX) Swale investigations and removal actions

- Five exploratory samples were collected in April 2002 for TAL/TCL constituent analysis. Based on the results,

which showed exceedances of toluene and various metals (chromium, copper, lead), the Navy excavated the entire NEX Swale (approximately 365 linear feet) and collected confirmatory samples for metals and VOC analyses.

- Exceedances of metals (arsenic, beryllium, chromium, and lead) in two confirmatory samples led to re-excavation of the southern area of the NEX Swale (Figure 1) to a greater depth. A second round of confirmatory samples was collected and analyzed for metals. The results showed that no unacceptable risks remained in this area following the second excavation.

- Approximately 207 tons of sediment were removed from the NEX Swale and disposed of off site.

- The Navy collected three more samples in December 2006 from the northern end of the NEX swale. The analytical results were reviewed and screened against the human health and ecological benchmarks for sediment, and against base-wide background levels, where relevant. The screening results indicate that no further action is necessary at the NEX Swale.

Fuel Farm Swale investigations and removal actions

- During the exploratory sampling in 2002, the only analyte which exceeded screening benchmarks at the Fuel Farm Swale (Figure 1) was benzo(g,h,i)perylene.

- The Navy removed approximately 150 linear feet of accumulated sediment from the Fuel Farm Swale during the storm drain cleaning and sediment removal activities conducted in November 2002. The confirmatory sample did not show any concentrations that exceeded background levels.

- Approximately 204 tons of sediment were removed and disposed of off site.

RIA 30B Swale investigations and removal actions

- Exploratory sediment samples were collected in the RIA 30B Swale (Figure 1) in fall 2002. Concentrations of various PAHs and metals exceeded the screening criteria, as well as PCBs in one location.

- The Navy excavated approximately 700 linear feet of material from the swale and collected confirmatory samples. Based on the first set of confirmatory results from November 2002, which still showed two metal (antimony and chromium) and numerous PAH exceedances, the Navy conducted an additional excavation. The second round of confirmatory samples from December 2002 was analyzed for PAHs and metals and showed no exceedances of the screening criteria, indicating that the removal action was effective.

AOC 61 Environmental Investigations and Removal Actions

1983—The Navy began evaluating environmental impacts at NAS South Weymouth, including site walkovers, reviews of base records, and interviews.

1994—EPA listed NAS South Weymouth on the National Priorities List.

A fuel release to the TACAN outfall was documented and investigated under the MCP. The site was given the release tracking number (RTN) 3-10739 and closed out after several investigations.

1995—The Navy performed a Phase I EBS to identify additional potentially contaminated sites requiring further investigation. As a result, AOC 61 was one of the areas identified for further study.

1996—The Navy collected four sediment samples downstream of the TACAN outfall as part of the Phase I Remedial Investigation for NAS South Weymouth under CERCLA.

1998-2000—The Navy conducted a Phase II EBS that involved installing monitoring wells and analyzing surface and subsurface soil, surface water, sediment, and groundwater samples collected from the area. The results were screened against EBS criteria which indicated potential risks to human health and the environment. Thereafter, the site was classified as a CERCLA AOC.

2001—The Navy collected additional samples for PCB analysis in the TACAN outfall to better define the extent of PCB contamination in sediment.

2002—The Navy collected sediment samples in the drainage ditches upstream of the TACAN outfall to determine spot-excavation locations. Prepared an EE/CA and began jet spraying operation and excavation activities at furthest upstream locations.

2003-2004—The Navy performed a removal action at the TACAN outfall and the stormwater sewer system. Approximately 36,000 linear feet of storm sewer pipeline were cleaned and inspected using a remote-controlled video camera. Approximately 4,000 linear feet of sediment were excavated from upstream drainage ditches and 800 linear feet from the TACAN outfall itself. Confirmation samples were collected to ensure that the impacted sediment had been removed.

2006—Sediment samples were collected in portions of various ditches not properly characterized.

2007—Subsurface soil samples were collected adjacent to areas with compromised drainage piping and sediment samples were collected at the piping outfalls along French's Stream.

2008—The Navy collected six additional sediment samples for PCB analysis from the banks of the TACAN outfall to address regulatory concerns about flood flow backup upstream of the weir.

- Approximately 1,078 tons of sediment were removed and disposed of off site.

- The Navy collected four additional samples in December 2006. The samples were analyzed for TCL organics and TAL metals; the results were screened against human health and ecological benchmarks, and base-wide background concentrations where applicable.

- In the December 2006 dataset, two PAHs (benzo(g,h,i) perylene and indeno(1,2,3-cd)pyrene) in one sample exceeded background levels and exceeded their ecological benchmarks.

- While the benzo(g,h,i)perylene concentration exceeded the ecological benchmark, it was within the range of concentrations detected in the Virgo Street Ditch confirmatory samples for which it was shown that there was no significant risk to ecological receptors.

- The concentration of ideno(1,2,3-cd)pyrene exceeded the ecological benchmark and slightly exceeded the Region IX PRGs, but does not exceed the MCP S-1/GW-1 standard and is, therefore, unlikely to be a concern to human health. Although the indeno(1,2,3-cd)pyrene concentration in the one sample exceeds its ecological benchmark, it is not much greater than the background level of 490 µg/kg. Since this PAH only exceeded background in one sample, it is not expected to have any adverse effects on ecological receptors.

Virgo Street Ditch investigations and removal actions

- During the 2002 exploratory sampling, sediment samples were collected at 100-foot intervals along the Virgo Street Ditch (Figure 1). After the results were screened against the selected benchmarks, the Navy excavated 300 linear feet of sediment from this ditch, based on exceedances of benzo(g,h,i)perylene in two samples.

- Approximately 324 tons of sediment were removed and disposed of off site.

- Two confirmatory samples were analyzed for TAL metals and TCL organics. The only analyte which exceeded both background and ecological benchmarks was benzo(g,h,i)perylene. A risk evaluation of the confirmatory sample results indicated that there was no significant risk of harm to vertebrate wildlife receptors from the reported concentration of benzo(g,h,i)perylene.

Connecting Swale investigations and removal actions

- Based on a PAH exceedance (benzo(g,h,i)perylene) identified in 1 of 11 exploratory samples, the Navy excavated approximately 200 linear feet of sediment from the Connecting Swale (Figure 1). No PAHs were detected in the confirmatory sample that was collected after excavation.

- Approximately 217 tons of sediment were removed and disposed of off site.

- In January 2007, the Navy collected four surface water and sediment samples in the Connecting Swale as part of the Solvent Release Area (SRA) remedial investigation (RI). Constituents detected in SRA samples which exceed background levels and screening benchmarks will be evaluated as part of the SRA RI risk assessment.

Barracks Ditch investigations and removal actions

- Three exploratory samples were initially collected from the Barracks Ditch (Figure 1) in 2002 and were analyzed for TCL/TAL constituents. Concentrations of six PAHs and two pesticides (endosulfan sulfate and aldrin) exceeded the screening criteria. Accordingly, the Navy excavated approximately 700 linear feet of sediment from the Barracks Ditch.

- Approximately 370 tons of sediment were removed and disposed of off site.

- The one confirmatory sample collected and analyzed for PAHs showed no exceedances. To address EPA's concern that a single confirmatory sample was not adequate to demonstrate the success of the removal action and to ensure that the Barracks Ditch had been properly characterized, the Navy collected additional sediment samples from seven locations (at 100-foot intervals) along the entire length of the excavated area in December 2006. The samples were analyzed for TAL metals and TCL organics.

- A comparison of the results to the various benchmarks concluded that there is no significant risk to human health or ecological receptors at this site.

- In January 2007 as part of the SRA RI, one other sample was collected in the Barracks Ditch. The sample results will be evaluated in the SRA RI report.

East Mat Ditch investigations and removal actions

- Ten exploratory samples collected in 2002 in the western portion of the East Mat Ditch (Figure 1) were analyzed for TCL/TAL constituents. Due to exceedances of metals, PAHs, pesticides, and one PCB (Aroclor-1260) in the sediment, the Navy excavated approximately 350 linear feet of the western end of the East Mat Ditch in December 2002.

- Approximately 344 tons of sediment were removed and disposed of off site.

- Confirmatory samples were collected and analyzed for TCL/TAL parameters. A re-excavation in one area was performed due to Aroclor-1260 above the 1 mg/kg Toxic Substances Control Act (TSCA) residential screening level. No additional confirmatory samples showed Aroclor-1260 exceeding the TSCA criterion.

- During completion of the SRA RI field program in January 2007, sediment and surface water samples were collected from two locations within the western end of the East Mat Ditch that was previously excavated as part of the TACAN removal activities. Analytes in sediment and surface water samples that exceeded background levels and screening benchmarks will be evaluated as part of the SRA RI risk assessments.

Storm Water Drainage System investigations

- Following clean out and camera inspection of the storm water drainage system and in response to EPA concerns about the integrity of the piping, in August 2007 the Navy collected subsurface soil samples adjacent to potentially compromised sections of drainage piping. Eight subsurface soil samples were collected adjacent to compromised piping associated with AOC 61 and were analyzed for full suite TCL/TAL constituents.

- Arsenic in two samples and iron in one of the two samples exceeded background values and PRGs. The maximum concentrations of these metals were further evaluated: the arsenic concentration was less than the applicable MCP S-1/GW-1 soil standard and iron is considered to be an essential nutrient. These two metals therefore do not pose unacceptable risks to human health. Because these results are for subsurface soils, which do not provide a complete exposure pathway for ecological receptors, they were not screened against ecological benchmarks.

TACAN Tributary investigations and removal actions

- Seven exploratory samples were collected in 2002 from the TACAN tributary (Figure 4). Cadmium in one sample exceeded the ecological benchmark and its background value. The Navy excavated approximately 200 linear feet of sediment during the storm drain cleaning and sediment removal activities conducted in 2002 to 2003.

- Confirmatory samples were collected from the excavated area in November 2003 and the results screened against the various benchmarks. One COPC, carbon disulfide, exceeded the ecological benchmarks; however, a risk evaluation determined that its concentration would not cause unacceptable risk to ecological receptors or the environment.

Taxiway C Ditch investigations

- Based on the results of seven exploratory samples collected in Taxiway C Ditch in October 2001 (Figure 4) no excavation was determined to be necessary for this area.

TACAN Outfall investigations and removal actions

- The TACAN Outfall (Figure 4) is the culmination point for a large part of the Base drainage system and receives storm water discharge from all of the areas (swales, ditches, etc.) described above. Between 2001 and 2003 various exploratory samples were collected for either PCBs only or full TCL/TAL analysis. Based on the PCB analytical results, the entire length (700 feet) of the outfall upstream of the weir was excavated.

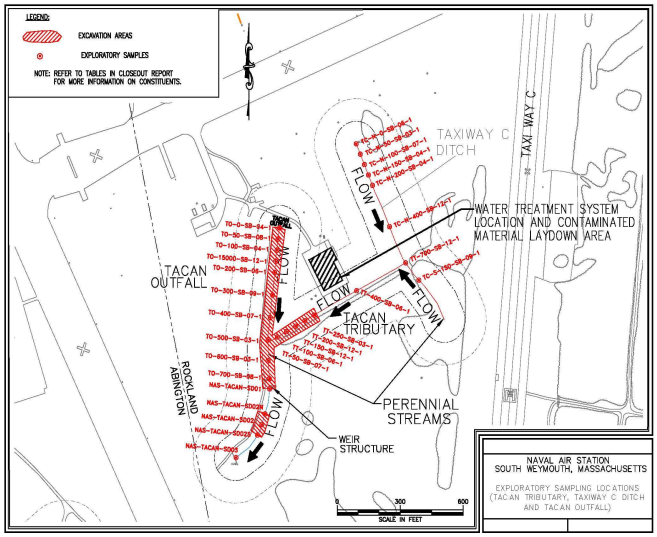

Figure 4 – TACAN Outfall, Tributary, Taxiway C exploratory sampling locations

- One pesticide (endosulfan sulfate), lead, and five PAHs exceeded the screening criteria in two of the four exploratory samples that were collected downstream of the weir. Based on these results, 100 linear feet of sediment downstream of the weir were also excavated in November 2003.

- Confirmatory samples were collected from the bottom of the excavation and analyzed for TAL metals and TCL organics; sidewall samples were analyzed for PCBs only. Twelve PAHs in one sample from the northern end of the excavation exceeded screening criteria.

- Approximately 200 feet at the northern end of the TACAN outfall ditch were re-excavated; confirmatory sample results indicated acceptable concentrations.

- Approximately 1,107 tons of sediment were removed from the area of the TACAN Outfall and Tributary.

- In June 2008, six soil samples were collected for PCB analysis from the east and west banks of the TACAN ditch south of the headwall. This sampling was to address EPA concerns about potential PCB contamination around the outfall area due to flood flow backup from the TACAN outfall. Aroclor-1260 was detected in low concentrations in two samples, but did not exceed the screening benchmarks.

- More detailed information on all the sampling and removal activities (including sample locations) is provided in the TACAN Closeout Report and Technical Memorandum for AOC 61. As stated earlier, these documents are available for review at the listed information repositories.

2008 AOC 61 Technical Memorandum

The Navy prepared a Technical Memorandum which summarized the investigations and removals performed in the areas comprising the TACAN outfall and drainage system. The data sets representing current, post-excavation site conditions were screened against applicable basewide background levels and ecological and human health benchmarks.

AOC 61 Conclusions/NFA Rationale

The Navy completed a non-time critical removal action at AOC 61 in 2004 to remove accumulated sediment from the TACAN Outfall and storm water drainage system. In 2006, the Navy conducted additional sediment and subsurface soil sampling to better characterize the NEX Swale, RIA 30 B Swale, Barracks Ditch, and the soil beneath the Storm Water Drainage system piping.

The additional analytical results confirmed that the earlier removal actions had been effective in reducing any human health and ecological risks to acceptable levels. The comparison of the 2006-2007 data set to the screening criteria indicated that the results are comparable to the results from the screening of the confirmatory samples from the removal activities in 2002-2003.

Prior to the 2007 sampling round, no subsurface soil sample results were available for AOC 61. The results from this sampling event were compared to EBS human health benchmarks and to site background levels. These subsurface soils, which were collected beneath visually compromised drainage piping, contained some inorganic analytes that exceeded background concentrations, but are not a hazard to human health or the environment.

As discussed above, there are no identified risk concerns associated with the various areas comprising AOC 61. Therefore, the Navy concludes that the removal actions have successfully mitigated potential risks associated with past activities and that a No Further Action recommendation is appropriate for AOC 61.

Rationale for the No Further Action Proposal

The Navy has concluded that No Further Action is appropriate for AOCs 60 and 61 for the following reasons:

AOC 60 – East Mat Drainage Ditch

- The Navy performed an ERA for sediment and surface water. The ERA concluded that the primary contributor to risk was one hot spot and that if the hot spot were to be removed, the site would not pose unacceptable ecological risk.

- The Navy completed a removal action (excavation and off-site disposal) to remove the hot spot indicated by the ERA, as well as a second hot spot suggested by regulators.

- A human health and ecological risk evaluation of post-removal confirmatory samples concluded that no unacceptable risk remained to human health or to ecological receptors.

AOC 61 – TACAN Outfall

- The Navy completed a removal action to remediate sediment in the TACAN outfall. In order to prevent re-contamination of the outfall, the upstream storm sewer system was cleaned and the drainage ditches sampled and excavated if necessary.

- Confirmatory sediment samples were collected from the excavations and compared to benchmark screening levels and background values. If the analytes had an associated background level, they were compared to background. If they did not have a background level, they were compared to benchmark screening levels. Locations where confirmation samples exceeded their respective criteria (benchmark screening levels or background) were re-excavated until the analytical results from confirmation samples showed that no unacceptable risks remained.

- Final post-excavation confirmation samples were below the target clean-up levels and did not pose unacceptable risk to human health or the environment.

Under CERCLA, if no unacceptable risks to human health or the environment are identified, then no further action is required.

Next Steps

Community review and comment of this Proposed Plan is the next step in the CERCLA process for AOCs 60 and 61. The Navy encourages the public to review this Plan and to submit comments. During the public comment period from October 1, 2008 to October 31, 2008, the Navy will accept written comments on the Proposed Plan. The Navy will accept oral comments during a Public Hearing that follows a Public Information Session to be held on October 16, 2008 at NAS South Weymouth.

Once the communities have commented on this Proposed Plan, the Navy and EPA will consider all formal comments received. It is possible that public comments can change the Navy's NFA proposal. The Navy is required by law to provide written responses to formal comments received on this Proposed Plan. These responses will be provided in a document called the Responsiveness Summary, which will be attached to the Record of Decision (ROD) for the sites.

The ROD will contain the rationale for the Navy's and EPA's decision at AOCs 60 and 61. The Navy and EPA anticipate that all comments will be reviewed and the ROD will be signed by December 30, 2008. The document will then be made available to the public at the information repositories listed at the end of this document. Also, the Navy will announce the availability of the ROD through the local news media and the community mailing list.

If the No Further Action proposed plan is approved, all environmental investigations and activities for AOCs 60 and 61 will be considered complete following signature of the ROD, and the properties will be made available for reuse by the communities.

Commitment to the Communities

The Navy is committed to keeping the communities informed on the environmental cleanup program at NAS South Weymouth. A Restoration Advisory Board (RAB), comprised of community leaders, government agency representatives, and local citizens, meets regularly to discuss the environmental program at NAS South Weymouth. At these meetings, you can learn about and offer suggestions for the Navy's program activities. Upcoming RAB meetings are publicized in local news media and are open to the public. Past meeting minutes are available on the NAS South Weymouth website:

http://nas-southweymouth.navy-env.com/

The Navy also maintains a community mailing list for distributing information about the environmental program. If you would like to be added to the mailing list, please contact Mr. Brian Helland at the address provided on the first page of this Proposed Plan.

Details of the information summarized in this Proposed Plan are available for review at the information repositories listed repositories listed at this end of this document.

Important Dates

Public Comment Period
October 1, 2008 to October 31, 2008

Public Information Session and Public Hearing
October 16, 2008

Your Questions and Comments Are Important

Formal comments are used to improve the decision-making process. The Navy will accept formal comments from the public during a 30-day comment period and will hold a public information session and hearing for both written and oral comments (see page 1 regarding how to submit a formal comment to the Navy).

Your formal comments during this time will become part of the official record for AOCs 60 and 61. The Navy will consider the comments received during the comment period prior to making the final decisions for the sites. The public is encouraged to participate during this period as your thoughts and opinions will help in making the final decision. You do not have to be a technical expert to take part in the process.

COMMENT SHEET – Proposed Plan for Areas of Concern 60 and 61

Use this space to write your comments or to be added to the mailing list.

The Navy encourages your written comments on the Proposed Plan for AOC 60 (East Mat Drainage Ditch) and AOC 61 (TACAN Outfall and Associated Areas), Naval Air Station South Weymouth, Weymouth, Massachusetts. You can use the form below to send written comments by mail or fax to (215) 897-4902. If you have questions about how to comment, please call Brian Helland at (215) 897-4912. This form is provided for your convenience.

Please mail this form or additional sheets of written comments, postmarked no later than October 31, 2008 to the address shown below:

Mr. Brian Helland
Remedial Project Manager
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Comment Submitted by: _____

Address: _____

_____

_____

_____

Affix
Postage

Mr. Brian Helland
Remedial Project Manager
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, PA 19112

(Fold on dotted line, staple, stamp, and mail)

GLOSSARY OF TERMS

Analyte—A substance or chemical constituent that is determined in an analytical procedure.

Area of Concern (AOC)—Former Environmental Baseline Survey Review Item Area currently being investigated under CERCLA. These sites required removal actions and/or risk assessments to address site concerns.

Background Level—Chemicals or concentrations of chemicals present in the environment due to naturally occurring geochemical processes and sources, or to human activities not related to specific point sources or source releases.

Benchmark—Concentration of a chemical considered to be protective of human health or the environment.

Bioaccumulation—The net accumulation of a chemical by an organism as a result of uptake from all routes of exposure.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—A federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). These laws created a system and funding mechanism known as the Superfund program for investigating and cleaning up abandoned and/or uncontrolled hazardous waste sites. The Navy's cleanup of sites regulated by CERCLA/SARA is funded by the Department of Defense under the Defense Environmental Restoration Fund.

Contaminants of Potential Concern (COPCs)—A substance detected at a hazardous waste site that has the potential to affect receptors adversely due to its concentration, distribution, and mode of toxicity.

Environmental Baseline Survey—An environmental assessment conducted by the Navy at bases that have been closed under the Base Realignment and Closure (BRAC) Act.

Engineering Evaluation and Cost Analysis (EE/CA) — A description and engineering study of potential cleanup alternatives, e.g., removal actions, for a site.

Headwall—A wall of masonry or concrete built at the outlet of a drainpipe or culvert with the end of the conduit flush with the outer surface of the wall.

No Further Action—Under CERCLA, if some remediation has been conducted and "no unacceptable risks" to human health or the environment remain at a site, no further action is required.

Preliminary Remediation Goals (PRGs) —Target contaminant media concentration levels selected for long-term targets during the analysis and selection of remedial alternatives.

Proposed Plan—A document that summarizes the Navy's preferred cleanup remedy for a site and provides the public with information on how they can participate in the remedy selection process.

Receptors—The ecological entity exposed to a stressor (i.e., any physical, chemical, or biological entity that can induce an adverse response to an individual organism or to an ecosystem).

Record of Decision (ROD)—A legal, technical, and public document that explains the rationale and final cleanup decision for a site. It contains a summary of the public's involvement in the cleanup decision.

Removal Action— A type of short-term cleanup that can be conducted at any time during the CERCLA process to address threats to human health or the environment. Typically, "time critical" removal actions are conducted when it is determined that less than 6 months are available before site activities must be initiated and when the site has less complex or less extensive contamination than sites that would require long-term cleanup. An Action Memorandum is prepared to outline the removal action.

Responsiveness Summary—A document containing the responses to the formal comments submitted by the public regarding the Proposed Plan. This summary is issued as an appendix to the ROD.

Streamlined Ecological Risk Assessment: An ecological risk assessment using a limited number of conservative exposure pathways, receptors, and exposure assumptions agreed upon in advance with the regulatory agencies. Results indicating acceptable risk under the most conservative approach (for example, the residential scenario) would therefore indicate acceptable risk under all other scenarios.

Toxic Substances Control Act (TSCA) – A federal law passed in 1976 to regulate industrial chemicals produced or imported into the United States. PCBs are regulated under TSCA.

TETRA TECH NUS, INC.

For More Information…

Contacts

If you have questions or comments about this Proposed Plan, or any other questions about AOCs 60 and 61, please contact us:

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EPA Project Manager
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keckler.kymberlee@epa.gov

Mr. David Chaffin
MassDEP Project Manager
(617) 348-4005
david.chaffin@state.ma.us

Information Repositories

Documents relating to environmental cleanup activities for the NAS South Weymouth property are available for public review at the following information repositories:

Tufts Library
46 Broad Street
Weymouth, MA 02188
(781) 337-1402
Monday-Thursday: 9:00 – 9:00
Friday-Saturday: 9:00 – 5:00
Sunday: Closed

Abington Public Library
600 Gliniewicz Way
Abington, MA 02351
(781) 982-2139
Monday, Tuesday, Thursday: 10:00 – 8:30
Wednesday, Saturday: 10:00 – 5:00
Friday: 12:00 – 5:30
Sunday: Closed

Department of the Navy
Caretaker Site Office
c/o David Barney
1134 Main Street, Building 11
South Weymouth, MA 02190
Monday-Friday: 8:00 – 4:00
Sunday, Saturday: Closed

Hingham Public Library
66 Leavitt Street
Hingham, MA 02043
(781) 741-1406
Monday-Thursday: 10:00 – 9:00
Friday: Closed
Saturday: 9:00. – 5:00
Sunday: 1:00 – 5:00

Rockland Memorial Library
20 Belmont Street
Rockland, MA 02370
(781) 878-1236
Monday: 12:00 – 8:00
Tuesday, Wednesday: 9:00 – 8:00
Thursday: 9:00 – 5:00
Friday-Saturday: 10:00 – 4:00
Sunday: Closed